# Collaborative Investigation of Odors, Air Quality, and Health in a Community Bordering a Landfill

***Minister Robert L. Campbell[1], David Caldwell[1], Barbara Hopkins[1], David Richardson[2], Shannon Hatcher[3], Tom Roche[3], and Christopher D. Heaney[4]***
***[1]Rogers-Eubanks Neighborhood Association and Coalition to End Environmental Racism, Chapel Hill, NC; [2]Institute for the Environment, [3]Department of Environmental Sciences and Engineering, [4]Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC***

**Background and Objective:** The Rogers-Eubanks community is a historically black neighborhood that predates the Orange County Municipal Landfill sited along its border in 1972. The Rogers-Eubanks Neighborhood Association (RENA) collaborated with scientists at the University of North Carolina at Chapel Hill (UNC) with the aim of investigating residents' health and quality of life concerns about malodor from the landfill in their community.

**Methods:** Utilizing a community-driven research approach, RENA members and UNC researchers enrolled individuals to complete odor diaries detailing the intensity, frequency, and nature of malodors and how odors impacted individuals' daily activities, physical symptoms, and mood twice daily over a 2-week period. In addition to the odor diaries, continuous air monitoring of hydrogen sulfide ($H_2S$) was conducted.

**Results:** Study partners enrolled a total of 38 individuals for diary data collection. More than 29,000 5-minute $H_2S$ measures were recorded over a period of 82 days (mean = 0.414 ppb, SD = 0.569, range = 0–14.862 ppb).

**Conclusions:** The project built community capacity for research to quantify community exposures to airborne $H_2S$ emissions from the landfill; characterized relationships between $H_2S$ exposures and odor, physical symptoms, irritation, quality of life, and mood measures; and supported RENA's efforts to replicate this research approach in landfill communities facing similar environmental and health disparities.